

**Crime Lab Equipment Replacement****FY2001 Request: \$207,100**  
**Reference No: 6145****AP/AL:** Appropriation**Project Type:** Equipment**Category:** Public Protection**Location:** Statewide**Contact:** Kenneth E. Bischoff**House District:** Statewide (HD 1-40)**Contact Phone:** (907)465-4336**Estimated Project Dates:** 07/01/2000 - 06/30/2006**Brief Summary and Statement of Need:**

This project will replace aging equipment in the Scientific Crime Detection Laboratory which services the entire state in support of criminal investigations. Existing equipment is currently failing and cannot be repaired due to its age. Without timely replacements evidence testing will have to be limited, hindering investigations and prosecutions.

<b>Funding:</b>	<b>FY2001</b>	<b>FY2002</b>	<b>FY2003</b>	<b>FY2004</b>	<b>FY2005</b>	<b>FY2006</b>	<b>Total</b>
Gen Fund	\$207,100	\$50,000	\$60,000	\$25,000	\$100,000	\$25,000	\$467,100
<b>Total:</b>	<b>\$207,100</b>	<b>\$50,000</b>	<b>\$60,000</b>	<b>\$25,000</b>	<b>\$100,000</b>	<b>\$25,000</b>	<b>\$467,100</b>

<input type="checkbox"/> State Match Required	<input type="checkbox"/> One-Time Project	<input checked="" type="checkbox"/> Phased Project	<input type="checkbox"/> On-Going
0% = Minimum State Match % Required		<input type="checkbox"/> Amendment	<input type="checkbox"/> Mental Health Bill

**Operating & Maintenance Costs:**

	<u>Amount</u>	<u>Staff</u>
Project Development:	0	0
Ongoing Operating:	0	0
One-Time Startup:	0	0
<b>Totals:</b>	<b>0</b>	<b>0</b>

**Additional Information / Prior Funding History:**

Forensic science is constantly changing and specialized equipment needs to be upgraded to keep up with improvements available. These purchases are necessary to support investigations and obtain convictions of guilty persons. There has been no recent funding of replacement equipment for the Crime Lab.

**Project Description/Justification:****PROJECT DESCRIPTION**

This project funds the replacement and upgrade of vital items of equipment in the Crime Laboratory. Sophisticated laboratory equipment is needed to replace outmoded instruments that are no longer adequate to test evidence in identifying perpetrators (or excluding innocent suspects) and to assist in the successful prosecution of those who commit crimes in Alaska. This project will replace such equipment as identified below.

**PROJECT NEED STATEMENT**

Replacement equipment is absolutely essential in a crime laboratory environment to keep up with innovations in technology in order to aid in successful investigations and prosecutions.

FY01:

\$120,000 - Scanning Electron Microscope/ X-ray Analyzer

\$ 87,100 - Trace Evidence Microspectrophotometer

\$207,100 - FY01 Total

The two instruments detailed below are complex electronic laboratory tools that replace outmoded versions first obtained when the Crime Lab opened over fifteen years ago. This equipment is necessary in evaluating trace evidence from crime scenes and suspects, which assists in both solving crimes and the subsequent prosecution of criminals who have

committed the most heinous crimes, including sexual assaults, rapes, homicides, etc.

The first item to be replaced is the Scanning Electron Microscope (SEM) coupled with an X-ray Analyzer unit (EDX). The SEM/EDX is used in the analysis of small particles such as paint chips and metal fragments. It is also used to identify materials seized from clandestine laboratories that illegally manufacture methamphetamine (speed). It is the only piece of equipment in the laboratory capable of providing inorganic analysis of certain forms of evidence. It has the ability to magnify items up to 40,000 times their actual size. Regular light microscopes only enlarge up to 430 times. The SEM/EDX is routinely used to analyze evidence from hit-and-run investigations, and has been used to analyze small particles recovered from homicide victims. The current instrument was purchased in 1986. The company that manufactured the existing x-ray analyzer is no longer in business and the existing SEM model has been discontinued for a number of years. Additionally, the instrument's computer is obsolete and contains components which are no longer supported.

The second instrument to be replaced also is used to examine trace evidence. This instrument is the microspectrophotometer, which is an analytical instrument used to analyze the physical characteristics of evidence through the analysis of the color of trace evidence such as fibers, paint chips, and inks. These types of evidence typically result from homicides, sexual assaults, vehicular hit and runs, and, in the case of inks and paper dyes, forgeries and altered documents. The use of this instrument is crucial in any comparative test where the scientific analysis of color is required. The laboratory's current instrument was purchased in 1986 and does not have the capabilities needed for the types of analyses the laboratory is called upon to perform. The existing instrument is no longer being supported by the manufacturer and it is based on an outdated computer with no means to store and perform searches of spectral data needed to successfully complete the testing of many forms of evidence.

FY02: \$50,000 - Laboratory Information Management System (LIMS)

The Scientific Crime Detection Laboratory can no longer do without a specialized forensic information management system to replace the existing databases to generate statistical data relevant to casework performed for law enforcement in Alaska. An efficient LIMS system is also needed to meet the American Society of Crime Laboratory Directors Laboratory Accreditation Board reporting requirements. This accreditation is necessary if the laboratory's testing of evidence is to be credible in court.

The laboratory has always used some type of computerized tracking system, however the various databases currently in use have always been produced in-house with major expense of time and effort that has accomplished mixed results and which are not currently meeting the laboratory's needs. To stay current, the laboratory requires an information management system capable of handling the large amount and varied types of data related not only to the casework coming in, but also the analysis and final disposition of the submitted evidence. Rather than again modifying an existing system to make do, it has become apparent that an "off-the shelf" forensic LIMS system should be purchased. These systems are indispensable not only in tracking cases as they work through the laboratory, but they also allow for efficient management of casework and results. The Alaska Scientific Crime Detection Laboratory is the only crime lab on the West Coast that does not use a commercial LIMS system for case management.

The provision of a modern LIMS will increase the efficiency of the laboratory staff, thus assisting them in dealing with the constantly increasing case load.

FY03: - \$60,000 - DNA Testing Equipment

The field of forensic DNA analysis is rapidly changing. Although the laboratory currently has modern, state of the art equipment, funds will be needed by FY03 to purchase the next generation of DNA testing equipment. DNA testing equipment is used to analyze biological evidence collected from the most violent of crimes; homicides and sexual assaults. It is also used for generating DNA profiles in connection with the State's convicted offender DNA data base.

FY04: - \$25,000 - Firearms and Toolmarks Identification Equipment

The FY04 replacement equipment consists of purchasing and installing two items of equipment in the Firearms and Toolmarks Section of the laboratory. The first item is a fume hood that is necessary to meet EPA and OSHA standards to

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remove dangerous fumes from the Firearms Section that develop during certain types of chemical testing of evidence. This will also involve modifications to the building to allow for the proper venting of the gases. The second item is the purchase of a stereomicroscope for this section and mounting it from the ceiling over the firearms examination table.

### FY05: - \$100,000 - Toxicology Replacement Equipment

Imminent advances in technology in the field of Toxicology, which involves the analysis of controlled substances in body fluids, will require an updated Liquid Chromatograph Mass Spectrometer (LCMS) with increased sensitivity in order to keep up with the ability to accurately quantify levels of these types of evidence. Testing of this type of evidence is necessary not only in controlled substance cases, but in various types of other crimes, that are affected or influenced by controlled substance use.

### FY06: - \$25,000 - Furniture Replacement

Both the desks and chairs in the classroom and throughout the facility have not been replaced since the facility first opened. By FY06, it is anticipated that the entire classroom's furniture and many of the desks, chairs and file cabinets elsewhere in the facility will require replacement.

## **DOCUMENTATION OF ESTIMATED CAPITAL COST**

Each of the estimates for the above projects are based upon the crime laboratory's staff familiarity with the equipment available in their various fields of expertise.

## **ANALYSIS OF ESTIMATED OPERATION COSTS**

This project will not result in any additional operating costs, however if equipment is not replaced timely in several instances the cost of repairs will increase.

## **IDENTIFICATION OF ALTERNATIVES CONSIDERED**

- . Leasing - The operating budget of the Laboratory Services component can not sustain lease costs of the magnitude that would be necessary to have these instruments provided.
  
- . Do not replace the instruments - This is not possible given the role of the Crime Lab to support law enforcement in Alaska.